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09/682,502	09/10/2001	Mats Danielsson	GPD0020-US	7905

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EXAMINER

GAGLIARDI, ALBERT J

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 03/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/682,502

Applicant(s)

DANIELSSON, MATS

Examiner

Albert J. Gagliardi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Sweden on 10 March 1999. It is noted, however, that applicant has not filed a certified copy of the Swedish application as required by 35 U.S.C. 119(b).

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the apparatus comprising several detectors, each having a collimator (claim 7) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

3. Claim 2 is objected to because of the following informalities: in line 3, "to hit" should probably be --from hitting--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 12 and 13 are is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a

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process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 12 and 13 are rejected because the claims provide for the use of an apparatus for the detection of incident radiation, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 3, 9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Nelson (US 4,937,453).

Regarding claim 3, *Nelson* discloses an apparatus **Figs. 1, 6A** for detecting x-rays comprising: an x-ray detector comprising a plurality of semiconductor strips (12; col. 3, line 63-64) arranged on a substrate (10), the detector of sufficient height to cause the dissipation of substantially all of the incident radiation (col. 4, lines 12-16), and electrical outputs (12) for each

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of the strips; and electrical connections (18) between the strips such that the electrical output corresponding to corresponding points in each of the strips is combined.

Regarding the orientation of the detector relative to the incoming radiation and the area actually exposed to the radiation, it is noted that such functional limitations do not limit the structure of the claimed apparatus.

**Note:** Apparatus claims must be structurally distinguishable from the prior art. Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Apparatus claims cover what a device is, not what a device does. *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). See MPEP 2114.

Regarding claim 9, *Nelson* discloses that detector is made of silicon (col. 3, line 58).

Regarding claim 11, the orientation of the detector relative to the incoming radiation, it is noted that such functional limitation does not limit the structure of the claimed apparatus (see Note above).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nelson*.

Regarding claim 10, *Nelson* discloses that the detector may utilize different materials (col. 6, lines 62-64). Particular materials such as gallium arsenide and CdZnTe are well known for use in radiation detectors and would have been an obvious design choice.

12. Claims 1-2, 4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nelson* in view of *Iwanczyk* (US 5,227,635).

Regarding claim 1, *Nelson* and *Iwanczyk* (see explanation regarding claims 4 and 6 below) suggest a method of obtaining improved radiographic images comprising the steps of: orienting a semiconductor radiation detector having a height greater than its thickness (see generically Figs. 1 and 6A), the detector comprising a substrate (10) and pixel sensors formed as strips (12); wherein the orientation step includes selecting an acute angle between a direction of the incident radiation such that the incident radiation mainly hits the side of the detector (col. 7, lines 7-11); and excluding at least one section of the hit area between at least one edge of the detector and at least one active sensor (i.e., the area covered by the collimator (21) as suggested by *Iwanczyk*), wherein substantially all of the radiation is dissipated within the detector (col. 4, lines 12-16).

Although *Nelson* does not disclose the particular angle as being selected to be less than about 10 degrees, absent some degree of criticality, it would have been a matter of obvious design choice within the skill of a person of routine to choose the optimum angle depending on the needs of the particular application.

Regarding claim 2, in the method suggested by *Nelson* and *Iwanczyk*, *Iwanczyk* suggests a step of collimating using a collimator with a slot (21) to prevent incident radiation from hitting the edge of the detector.

Regarding claim 4, *Nelson* does not disclose the detector includes a guard ring to sink leakage current.

Regarding the use of a guard ring, *Iwanczyk* discloses an x-ray detector (10) including a guard ring (15) to sink leakage current (col. 1, lines 41-51). *Iwanczyk* teaches that the use of a guard ring allows for improved energy detector performance (col. 1, lines 52-54). As such it would have been obvious to a person of ordinary skill in the art to modify the device disclosed by *Nelson* to include a guard ring so as to allow for improved detector performance.

Regarding claim 6, in the device suggested by *Nelson* and *Iwanczyk* (see explanation regarding claim 4 above), *Iwanczyk* further discloses the use of a collimator (21) having a collimator slot for preventing the incident radiation from hitting the edge of the detector (col. 2; lines 38-51).

Regarding claim 7, *Nelson* discloses that several detectors may be used in order to increase the size of the detector (see generally Figs. 3, 5; and col. 6, lines 33-34).

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nelson* in view of *Nygren* (US 5,434,417).

Regarding claim 5, although *Nelson* does not disclose the particular thickness of the detector, it is known in the art to arrange such detectors such that the thickness is between 0.1 mm and 1.0 mm (see for example *Nygren* disclosing an improved strip detector with a thickness of 0.3 -- col. 4, lines 15-17). As such, absent some degree of criticality, the choice of a thickness between 0.1 mm and 1.0 mm is viewed as an obvious design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

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14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nelson* and *Iwanczyk*, as applied to claim 7 above, and further in view of *Jahnke* (DE 196 18 465).

Regarding claim 8, regarding the use on an absorber placed between detectors, it is well known in the art (see for example *Jahnke*) to include the use of an absorber (3) placed between adjacent detectors (1). Those skilled in the art appreciate that the use of such absorbers allow for better system performance by reducing cross-talk and scattered radiation between detectors. As such it would have been obvious to a person of ordinary skill in the art to modify the device disclosed by *Nelson* and *Iwanczyk* to include absorbers in order to improve system performance.

***Conclusion***

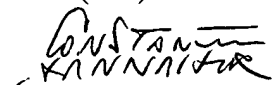
15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (703) 305-0417. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on (703) 308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

AJG  
March 6, 2002

  
CONSTANTINE HANNAHER  
PRIMARY EXAMINER  
GROUP ART UNIT 2878